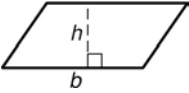
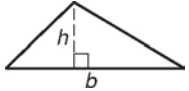
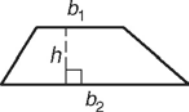
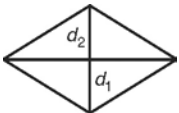
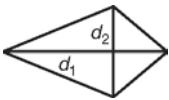


Dear Family,

We are going to work on unit 10. We have already completed the concepts from unit 9 in previous units.

In this unit, your child will learn to develop geometric formulas for calculating the perimeter, circumference, and area of a variety of shapes.

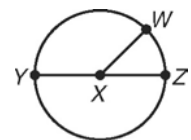
The area formulas for some polygons are presented in the table.

| Shape         | Area Formula                  | Example  |
|---------------|-------------------------------|--|
| parallelogram | $A = bh$                      |    |
| triangle      | $A = \frac{1}{2}bh$           |    |
| trapezoid     | $A = \frac{1}{2}(b_1 + b_2)h$ |   |
| rhombus       | $A = \frac{1}{2}d_1d_2$       |  |
| kite          | $A = \frac{1}{2}d_1d_2$       |  |

Your child will also learn the special properties of a circle.

This is circle X, or  $\bigcirc X$ . The circle has a radius  $r = XY$

and a diameter  $d = YZ$ .

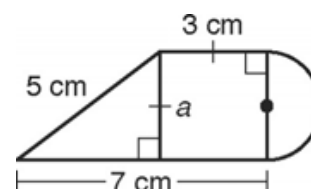


Your child will learn to calculate the area and circumference of a circle. In a circle,

$$A = \pi r^2$$

$$C = \pi d = 2\pi r$$

Your child will also learn to determine the area of composite figures. A composite figure is made up of simple shapes such as triangles, rectangles, trapezoids, and circles. In order to find the area of these shapes, the area of each simple shape must be determined and then the areas added together.



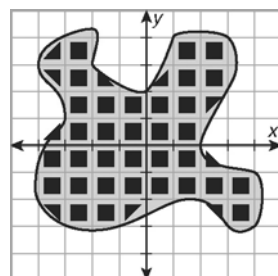
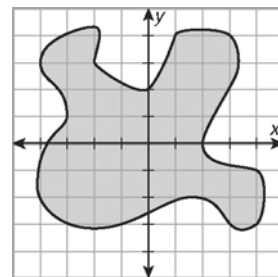
The area of this composite figure can be determined in the following steps.

- |  |   |                                      |   |
|--|---|--------------------------------------|---|
| 1. Determine the height of the triangle. | 2. Determine the area of the triangle.        | 3. Determine the area of the square. | 4. Determine the area of the half circle. |
| $a^2 + b^2 = c^2$                        | $A = \frac{1}{2}bh$                           | $A = bh$                             | $A = \frac{1}{2}\pi r^2$                  |
| $a^2 + 4^2 = 5^2$                        | $A = \frac{1}{2}(4 \text{ cm})(3 \text{ cm})$ | $A = (3)(3)$                         | $A = \frac{1}{2}\pi(1.5)^2$               |
| $a^2 = 25 - 16$                          | $A = 6 \text{ cm}^2$                          | $A = 9 \text{ cm}^2$                 | $A \approx 3.5 \text{ cm}^2$              |
| $a = 3 \text{ cm}$                       |   |                                      |   |
5. Add the areas of the simple figures to get the area of the composite figure.
- $$6 + 9 + 3.5 \approx 18.5 \text{ cm}^2$$

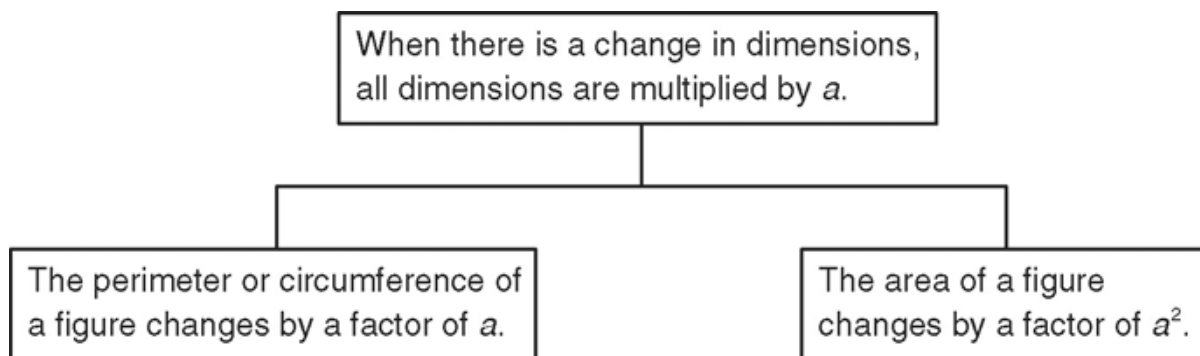
Your child will also work in coordinate planes while completing this chapter. One thing he or she will learn to do is to find the perimeter and area of irregular figures in a coordinate plane.

In this example, children will see that if they draw a composite figure that approximates the irregular shape of the figure, they can calculate its approximate area. By this method, they will estimate that the area of this irregular figure is approximately 38 square units.

Your child may also count the number of squares inside the figure, estimating the half squares. Your child will find that he or she will again come up with an answer of close to 38 square units.



Your child will also explore the effects of changing the proportions of figures. This will be done by realizing that when all dimensions of a figure are changed proportionally, the figure will be similar to the original one. Your child will use the following three steps to do this:



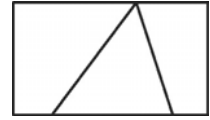
The last thing your child will cover in this chapter is geometric probability. This is the probability of an event based on a ratio of geometric measures such as length or area.

The probability of an event can be calculated using the following formula:

$$P = \frac{\text{number of outcomes in an event}}{\text{number of outcomes in a sample space}}$$

For example, the sample space here is the area of the rectangle. The event is the area of the triangle. Therefore, the formula for the probability of this event is

$$P = \frac{\text{area of the triangle}}{\text{area of the rectangle}}$$



The following are the assignments and the assessments for this unit. As a reminder the actual dates when the assignments are assigned can be found on the [assignment calendar](#) on my [school webpage](#). This can be found under classrooms on the [high school webpage](#).

Are You Ready Chapter 10 Pretest.

**10-1 Developing Formulas for Triangles and Quadrilaterals** (*p 683*) 11, 13, 15-17, 19, 21, 22, 24, 29, 32, 42, 43, 49-54.

**10-2 Developing Formulas for Circles and Regular Polygons** (*p 691*) 11-13, 15, 17, 22, 26, 30, 31, 33, 35, 38, 39, 41-44.

**10-3 Composite Figures** (*p 697*) 9-13, 22, 23, 30.

10A Ready to Go On Pre-Test & posttests

**Chapter 10 quiz 1.**

**10-4 Perimeter and Area in the coordinate plane** (*p 708*) 13, 15-18, 20, 21-23, 27.

**10-5 Effects of Changing Dimensional Proportionally** (*p 713*) 8-14, 26, 29.

**10-6 Geometric Probability** (*pp 721*) 17, 19, 21, 22, 23-29 odd, 32-34, 42, 43, 44.

10B Ready to Go On Section Pre-Test & posttests

Chapter 10 quiz 2.

Chapter 10 Practice test.

Chapter 10 test.